REMARKS

At the time the current Official Action was mailed, the Examiner rejected claims 19-38. In the present response, Applicants amend claims 19-28, 30-33 and 35-37 and add new claims 39-42. Accordingly, claims 19-42 remain pending in the present application. Reconsideration of the application in view of the foregoing amendments and the following remarks is respectfully requested.

Rejections under 35. U.S.C. § 102

The Examiner rejected claims 19-38 under 35 U.S.C. § 102 as being anticipated by Woo et al. (US 5,262,352). Specifically, the Examiner stated:

> Regarding claims 19 and 27, Woo discloses a first layer (14/15) superjacent a semiconductor substrate (10, a barrier film (16) having a structural integrity superjacent the substrate, a second layer (17/18/20) superjacent the barrier film and isolated from the first layer by the barrier film (col. 3, ln. 22 – col. 4, ln. 15). Woo does not specifically disclose that the second layer is isolated from the first layer when a temperature of 700°C or greater is applied. However, because the first layer, barrier layer, and second layer are made of the same materials as those of Applicant's invention, it appears that the layered structure of Woo would inherently possess the function of the second layer is isolated from the first layer when a temperature of 700°C or greater is applied. See *In re Swinehart,* 439 F.2d 210, 212-13, 169 USPQ 226, 229 (CCPA 1971) "where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claims subject matter may, in fact, be an inherent characteristic of the prior art, it possess the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristics relied on"); and *In re Fitzgerald,* 619 F.2d 67, 205 USPQ 594 (CCPA 1980) (a case indicating that the burden of proof can be shifted to the applicant to show that the subject matter of the prior art does not possess the characteristic relied on whether the rejection is based on inherency under 35 U.S.C. 102 or obviousness under 35 U.S.C. 103). Additionally, it is noted that claims 19-38 are product claims. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The

> patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe,* 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).
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> Regarding claims 26, 28 and 37, Woo discloses a first layer (14/15), inherently having a thermal coefficient of expansion, a nitride film (16) superjacent the first layer, and another layer (17/18/20), inherently having another thermal coefficient of expansion, superjacent the nitride film (col. 3, ln. 22 - col. 4, in. 15). Woo does not specifically disclose that the first and second layers are flowable at temperatures of at least 700°C. However, because the first and second layers are made of the same materials as those of Applicant's invention, it appears that these layers of Woo would inherently possess the function of being flowable.
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> Regarding claim 33, Woo discloses a semiconductor substrate (lo), a planarization layer (14/15), inherently having a thermal coefficient of expansion, superjacent the substrate, a barrier film (16) having structural integrity superjacent the planarization layer, and another layer (17/18/20), inherently having a thermal coefficient of expansion, superjacent the barrier film (col. 3, In. 22 - col. 4, in. 15). Woo does not specifically disclose that the barrier film prevents the planarization layer and the "another layer" from interacting when heated. However, because the first layer, barrier layer, and second layer are made of the same materials as those of Applicant's invention, it appears that the layered structure of Woo would inherently possess the function of preventing the planarization layer and the "another layer" from interacting when heated

Office Action, pages 2-5.

Legal Precedent

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15

U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single reference must teach each and every limitation of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). The prior art reference also must show the *identical* invention "*in as complete detail as contained in the ... claim*" to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). Accordingly, Applicants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter.

Claim Features Missing From the Cited Reference

The Examiner's rejection is traversed for a number of reasons. The cited reference does not teach or suggest "a single first planarization layer" or "a single second planarization layer," as recited by independent claims 19 and 33. (Emphasis added.) In sharp contrast, the Woo reference clearly teaches alternating dielectric layers 12, 16, and 20 and conductor layers 14 and 18. There is no evidence that any of these layers taught by the Woo reference serve to planarize the film stack. Indeed, Applicants note that the Office Action does not cite any portion of the Woo reference that indicates any of these layers are planarization layers. Thus, the Woo reference does not teach all the features of claims 19 or 33 or the claims that depend therefrom.

Similarly, the Woo reference does not teach or suggest "a first single flowable layer" or "a second single flowable layer," as recited by independent claim 26. Indeed, the Examiner has not cited any evidence that the layers disclosed by the Woo reference are flowable. In an attempt to locate a flowable layer in the Woo reference, the Examiner asserted that because the layers in the

Woo reference "are made of the same materials as those of Applicant[s'] invention, it appears that these layers of Woo would inherently possess the function of being flowable." Office Action, page 4. However, as is well known in the art, a layer is not flowable merely because it contains certain materials. *See e.g.* Stanley Wolf & Richard N. Tauber, Silicon Processing for the VLSI Era Volume 1: Process Technology 200 (Lattice Press 2000) (explaining that the capacity of borophosphosilicate glass to flow at a given temperature is a function of the *concentration* of boron and phosphorous in the glass); and *Id.* at 737 (indicating that *film thickness* governs the capacity of resist to planaraize, i.e. flow from high points to low points). Notably, factors other than the mere presence of certain materials in a layer significantly contribute to the capacity of a layer to flow. Thus, contrary to the Examiner's assertion, the layers taught by the Woo reference are not inherently flowable. Therefore, the Woo reference does not disclose all the features of claim 26 or the claims that depend therefrom.

Further, the cited portions of the Woo reference do not teach "single" first and second layers, as recited by claims 19, 26 and 33. In the Office Action, the Examiner cited <u>two</u> layers as the first layer (layers 14 and 15 in Fig. 1 of the Woo reference), and <u>three</u> layers as the second layer (layers 17, 18 and 20 in Fig. 1). *See e.g.* Office Action, page 2. In contrast, the present claims clearly recite "single" layers. For this reason alone, the cited reference cannot anticipate independent claims 19, 26 or 33 or their respective dependent claims.

Finally, the Woo reference does not teach the <u>combination</u> of layers recited by independent claims 19, 26 or 33. The Woo reference depicts a film stack in Figure 1 and lists a large number of candidate materials for each layer in the film stack in columns 3 and 4.

However, the Woo reference absolutely fails to disclose how to select among these candidate materials to produce the combination of layers recited by the present claims. For example, claim 19 recites a barrier film that "does not reflow at the first or second reflow temperatures" of the single first planarization layer and the single second planarization layer. In sharp contrast, the Woo reference does not teach how to combine the candidate materials listed for each layer in Figure 1 to produce such a relationship between the reflow temperatures of a barrier layer and planarization layers. Therefore, due to this lack of guidance as to how to select among the candidate materials for each layer, the Woo reference does not teach the combination of layers recited by claims 19, 26 or 33. Thus, for this reason also, the Woo reference cannot anticipate independent claims 19, 26 or 33.

For these reasons, Applicants respectfully requests withdrawal of the rejections under 35 U.S.C. § 102.

Conclusion

In view of the remarks set forth above, Applicant respectfully requests reconsideration of the Examiner's rejections and allowance of all pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

General Authorization for Extensions of Time

In accordance with 37 C.F.R. § 1.136, Applicant hereby provides a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefor. Furthermore, Applicant authorizes the Commissioner to charge the appropriate fee for any extension of time to Deposit Account No. 13-3092; Order No. 92-0321.04/MCRO:0144-3/FLE.

Respectfully submitted,

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Michael G. Fletcher
Reg. No. 32,777
FLETCHER YODER
P.O. Box 692289
Houston, Texas 77269-2289
(281) 970-4545